

Plug In Hybrid Electric Vehicle Aftermarket Parts Certification Requirements

**California Air Resources Board
Public Hearing
May 28, 2009**

January 2009 Board Hearing

- Adopted with modifications PHEV test procedures for new vehicles
- Board requested staff return with modifications to conversion system requirements to offer greater flexibility

Post January Process

- Conversion System Manufacturer Meetings
- March 25, 2009 Workshop
- Supplemental Report released May 12

Conversion Considerations

■ Original vehicle

- Designed with no all electric range
- Extremely clean vehicle (AT-PZEV)

■ Converted Vehicle

- Emissions Impacts
- Onboard Diagnostics Compliance
- OEM & Conversion warranty
- Effect on existing system or parts

Certification & Installation Procedures

- Similar to other Alternative Fuels Conversion Certification Procedures
- Allows modification of vehicles under OEM warranty
- Requirements reduced from OEM new vehicle certifications
 - Exhaust and Evaporative emissions testing
 - Durability
 - In-Use Testing
 - OBD System Compatibility
- Warranty

Tier 1

- Allows sale of up to 10 vehicles
- Application Requirements
 - Engineering analysis showing no emissions increase
 - Durability test plan and initial durability data
 - System & Installation Warranty 3yr/50K mi
- ARB approval of engineering analysis & submittal prior to sales

Tier 2

- Allows sale of 11th up through 100th vehicles
- Additional Application Requirements
 - Emission test data supports engineering analysis
 - Show of readiness indicators set and no OBD MIL/ DTC during emission tests
 - OBD compliance plan
 - Durability tests started
 - System supported through vehicle's useful life
 - ARB may perform confirmatory testing to verify emission test data
 - System warranty: 5yr/75K mi
- ARB approval of engineering analysis & submittal prior to sales

Tier 3

- Allows sale beyond the 100th vehicle conversion
- Additional Application Requirements
 - Durability test data requirements completed
 - Battery durability/test data
 - OBD approval
 - System warranty: 5yr/75K mi or remaining OEM warranty, whichever is longer
- ARB approval of engineering analysis & submittal prior to sales

Potential Impacts

- Warranty
- Emissions
 - Exhaust 5x higher
 - Evaporative 16x higher
- Verification of Emissions
 - Exempt in SmogCheck
 - OBD
 - In-use testing
- Economic

Concerns Expressed

- Higher vehicle thresholds in Tier 1 and Tier 2
- Reduced warranty provisions
- “Grandfather” existing vehicle conversions

Conclusions

- Revised certification procedure provides flexibility and ensures robust product
- Recommend adoption of staff's modified proposal